

AZT Review Q4T1 Key

1) $.4 = \frac{2}{5} \rightarrow \tan = \boxed{\frac{5}{2}}$ (B) 2) $\csc \theta = -\frac{2}{1} \rightarrow \sin \theta = -\frac{1}{2}$ (D)

3) $\cos \theta = -\frac{\sqrt{2}}{5} \rightarrow \sec \theta = -\frac{5}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right) = \boxed{-\frac{5\sqrt{2}}{2}}$

4) $\csc \theta = -\frac{4}{3} \rightarrow \sin \theta = \boxed{-\frac{3}{4}}$

5) Range of $\sin \theta$ is the domain of $\sin^{-1} \theta$ (B)

6) Range of $\tan \theta$ is the domain of $\tan^{-1} \theta$ (C)

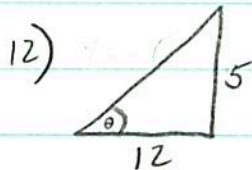
7) $\begin{array}{r} x-4 \geq 0 \\ +4 \quad +4 \\ \hline x \geq 4 \end{array}$ (A)

8) B (Remember it's a function)

9) (A)

10) $\cos \theta = \frac{1}{2} \quad \theta = 60^\circ$ (C)

11) $\sec 19^\circ = \frac{1}{\cos 19^\circ}$ (D)



Use Pythagorean to find missing side = 13

$\sin = \frac{\text{opp}}{\text{hyp}} = \frac{5}{13}$ (A)

13) $\tan \theta = \sqrt{3}$

$\theta = 60$

$\sin 60 = \frac{\sqrt{3}}{2}$ (D)

14) $\text{Amp} = \frac{\text{high} - \text{low}}{2} = \frac{6-2}{2} = 2$ (D)

15) $y = -4 \sin 2x \quad \text{Amp} = |-4| = 4$ (D)

Frequency



16) $y = 3 \cos 4x$ (D)

17) One full curve is from -2π to 2π which is 4π (C)

18) $y = -6 \sin 2x$ (A)
 $P = \frac{2\pi}{\text{freq}} = \frac{2\pi}{2} = \pi$

19) $|3y+2| + 4 = 2$
 $-4 \quad -4$

$|3y+2| = -2$

↑
 Can't be negative

No Solution

20) Period = $\frac{2\pi}{\text{freq}} = \frac{2\pi}{3/4} = \boxed{\frac{8\pi}{3}}$

21) $f(x) = \sin(3x+3)$
 $f(x) = \sin 3(x+1)$
 (C) ↑
 1 unit left

22) d = mid line (B)
 Midline = $\frac{\text{high} + \text{low}}{2} = \frac{9+3}{2} = 6$

23) Frequency = $\frac{2\pi}{\text{Period}} = \frac{2\pi}{4\pi} = \frac{1}{2}$
 Amp = 2
 $\rightarrow y = 2 \sin \frac{1}{2}x$ (A)

24) Frequency = $\frac{2\pi}{2\pi/3} = \frac{2\pi}{1} \cdot \frac{3}{2\pi} = 3$
 Amp = 4
 $\rightarrow \boxed{y = 4 \sin 3x}$

25) Amp = $\frac{\text{high} - \text{low}}{2} = \frac{9 - (-1)}{2} = \frac{10}{2} = 5$
 Midline = $\frac{\text{high} + \text{low}}{2} = \frac{9 + (-1)}{2} = 4$

Freq = $\frac{2\pi}{\pi/3} = \frac{2\pi}{1} \cdot \frac{3}{\pi} = 6$

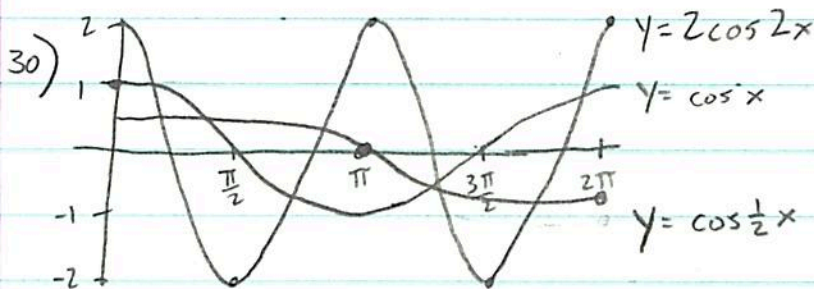
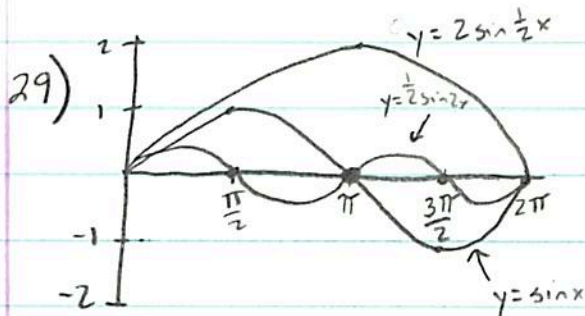
$\boxed{y = 5 \cos 6(\theta - 2) + 4}$

26) a) $\frac{1}{2}$ b) $\frac{2\pi}{2} = \pi$ c) $= 2$

27) (B)

28) $\frac{195 - 120}{14 - 9} = \frac{75}{5} = 15 = d$

$a_6 = a_9 - 15(3)$
 $= 120 - 45$
 $= \boxed{75}$



31) $\log_3(x^2 - 4) - \log_3(x + 2) = 2$

$\log_3\left(\frac{x^2 - 4}{x + 2}\right) = 2 \longrightarrow$

$\frac{2}{3} = \frac{x^2 - 4}{x + 2} \quad q = \frac{(x + 2)(x - 2)}{x + 2}$

$q = \frac{x - 2}{1} = x - 2$
 $\boxed{11 = x}$

32) $\frac{4}{10.60} = \frac{7}{x}$

$4x = 74.2$

$x = 18.55$

(D)

33) Amp = $\frac{1}{2}$
M.d.line = x-axis

$$y = \frac{1}{2} \sin 2x$$

(C)

Sin curve

Period = π

Freq = $\frac{2\pi}{\pi} = 2$

34) Amp = $\frac{9-3}{2} = 3$
Period = 4π (-2π to 2π)

$$y = 3 \cos \frac{1}{2}x + 6$$

Frequency = $\frac{1}{2}$

(A)

Midline = $\frac{9+3}{2} = 6$

35) (C)

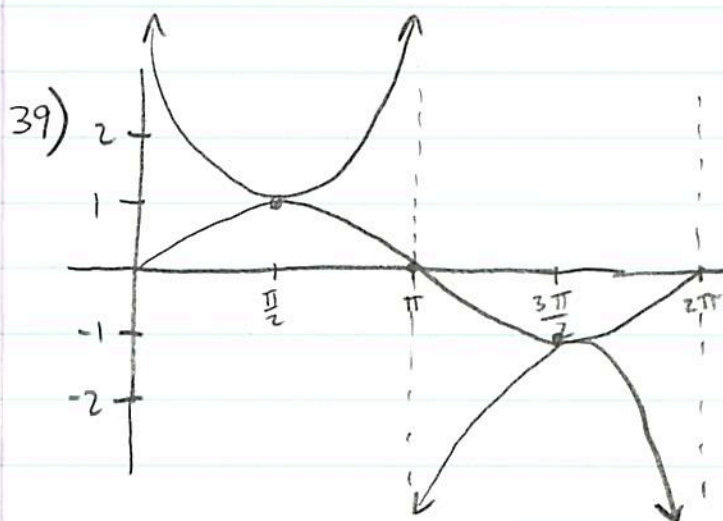
36) (C)

37) (A)

38) csc is undefined

when $\sin \theta = 0$ which is at $\theta = 0, 180, 360$

$0, \pi, 2\pi$



$\frac{160}{26}$

$$46) \frac{1}{-4+3i} \left(\frac{-4-3i}{-4-3i} \right) = \frac{-4-3i}{16-9i^2} = \boxed{\frac{-4-3i}{25}} =$$

$$47) \frac{4 \tan x - 1}{6} = \frac{1 - \tan x}{3}$$

$$\frac{12 \tan x - 3}{+ 6 \tan x + 3} = \frac{6 - 6 \tan x}{+ 3 + 6 \tan x}$$

$$\frac{18 \tan x}{18} = \frac{9}{18}$$

$$\tan x = \frac{1}{2}$$

$$\tan^{-1}\left(\frac{1}{2}\right) = \boxed{27^\circ}$$

48) Omit

49) Omit

50) Omit